CAREER

CLUSTER

FRAMEWORKS

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Introduction

The Connecticut School-to-Career (STC) System is a partnership in which educators, parents, organized labor, state agencies and the community work together, in a systematic approach, to effectively prepare students for the needs and demands of the global marketplace. Linked to Connecticut's Common Core of Learning, School-to-Career is designed for all students, beginning in elementary school and continuing into postsecondary education and training and lifelong learning.

It includes three core elements:

SCHOOL-BASED LEARNING

Relevant classroom instruction based on high academic and occupation specific skill standards.

WORK-BASED LEARNING

Structured learning and training experiences and mentoring at work sites.

CONNECTING ACTIVITIES

Activities that integrate classroom and workplace learning, student and employer partnerships, mentorships that build and maintain bridges between school and work, and businesses that provide workplace experiences for educators.

The Connecticut Career Certificate (CCC) is designed to be a portable credential attesting mastery of academic, employability and technical skills in one of eight career clusters. Each represents a range of occupations sharing a set of skills and knowledge.

The academic content and performance standards are the same for all eight career clusters, while the technical and employability content and performance standards are specific to each cluster.

The 8 career clusters are:

- Arts and Media
- Business and Finance
- Construction Technologies and Design
- Environmental, Natural Resources and Agriculture
- Government, Education and Human Services
- Health and Biosciences
- Retail, Tourism, Recreation and Entrepreneurship
- Technologies: Manufacturing, Communications and Repair

Mastery of the CCC cluster-related skills will be demonstrated by successful achievement on one of the following assessments: The 8th grade Connecticut Mastery Test (CMT), The 10th grade Connecticut Academic Performance Test (CAPT), The Scholastic Assessment Test (SAT), The CASAS ECS Level C, The CASAS ECS Level D or on a Nationally Recognized Test. Technical skills identified in the cluster frameworks represent the skill requirements established by the Connecticut School-to-Career partnership. These performance-based student outcomes address the entry-level skills necessary for employment in this cluster. All technical skills are sequential in the process of the continued development of a student's career goals.

Along with technical and employability skills, students striving for the CCC must demonstrate disciplined-based and interdisciplinary understandings and applications. While the CCC identifies technical, employability and academic competencies, it is the interrelationship among these areas and the student's ability to transfer this knowledge across areas in a career setting that will provide the ultimate indicator of success.

In addition to making academic and technical learning more relevant and rigorous for all students, School-to-Career will better equip young people with those skills necessary to make meaningful decisions regarding their lives and careers. Mastering these skills will result in students becoming more responsible and valuable contributors in both the community and the workplace. Necessary employability and life skills include the abilities to solve problems independently and in teams, communicate clearly and effectively, have a solid work ethic, be flexible and manage one's work and life responsibly. Adult role models, including mentors, teachers, counselors and workplace supervisors, provide guidance and examples to students in the development of these attributes necessary for successful lives and careers.

Like the Common Core of Learning, the Career Cluster Frameworks should be viewed as integrated and relevant. The academic skills are introduced at the elementary level and continue through the secondary level. The employability and technical skills may be introduced at the elementary level, while they are more focused in the secondary years of education.

Arts and Media Cluster

By the end of Grade 12, students will have learned how to apply the academic, technical and employability skills needed for success in the Arts and Media Cluster in higher education and the workplace, and to manage their personal lives.

Program Goals

As a result of education in Grades K-12, students will:

- embrace work and career as part of their future;
- acquire employability skills, including academic and technical skills;
- demonstrate positive attitudes toward work, including acceptance of the necessity of making a living and an appreciation of the social value and dignity of work;
- demonstrate attitudes and habits that are valued in the workplace, including pride in good workmanship, dependability and regular attendance;
- explore a range of careers and acquire specific knowledge or experience in the Arts and Media Cluster;
- explore career and postsecondary educational opportunities through performance-based learning experiences;
- manage data and utilize problem-solving and analytic skills to make reasoned decisions about employment, societal, political and economic issues; and
- expect multiple career changes over their lifetime.

Technical and Employability Content Standards

Technical Content Standard	Students will demonstrate technical knowledge and skills, including planning, organizing, evaluating, creating and performing in Arts and Media.
Employability Content Standard	Students will demonstrate appropriate employability traits and skills, including, team work, customer service, responsibility, adaptability and persistence.

Technical Content Standard:

Students will demonstrate technical knowledge and skills, including planning, organizing, evaluating, creating and performing in Arts and Media.

Grades 9-12 PERFORMANCE STANDARDS		
Educational experiences will assure that students:	Educational experiences will assure that students:	Educational experiences will assure that students:
Occupation-Specific	Occupation-Specific	Computer Applications
 know how to operate cameras and related equipment; know how to develop film; have knowledge of the equipment for the occupation; and will be able to operate machinery related to the job. 	 understand and use dance notation; understand the technology of the industry; apply technical knowledge and skills to create functional scenery, properties, lightning, sound, costumes and makeup; and know how to safely operate technical equipment relating to productions. 	 have familiarity with computers; use word processing programs; use database programs; use computer tools to locate information; understand computer graphics; and understand CAD technology.

Employability Content Standard:

Students will demonstrate appropriate employability traits and skills, including team work, customer service, responsibility, adaptability and persistence.

Grades 9-12 PERFORMANCE STANDARDS

Educational experiences will assure that students:	Educational experiences will assure that students:	Educational experiences will assure that students:
Teamwork	Personal Attributes	Customer Service Skills
 work effectively in a team context; follow verbal and written instructions; take the initiative as the situation demands; provide support to others (e.g. staff, peers, management, customers); and foster creativity and innovation. 	 take responsibility for their own decisions and actions; take the initiative as the situation demands; maintain high standards of personal behavior; demonstrate a positive self-concept, responsibility, self-reliance, motivation, persistence and intellectual curiosity; follow verbal and written instructions; persist until the job is done; work without close supervision; accept responsibility for production and quality; keep personal conflicts from impeding job performance; work effectively under stress; seek new challenges; apply ethical principles to behavior; respond constructively to constructive criticism; and maintain a professional image. 	 adopt a customer-service orientation; gather information from various sources to identify prospective customers and markets; communicate with customer in a professional manner; maintain accurate and complete information about customers; document and process customer information and orders; interpret customer information to identify needs; offer options to problems and negotiate solutions; show customers how to implement solutions and training; monitor an implementation plan and take action whenever necessary; identify new customer needs; inform customers when needs cannot be met; make alternate recommendations; and analyze customer feedback to improve the internal customer support process.

Grades 9 - 12 PERFORMANCE STANDARDS continued

Educational experiences will assure that students:

Adaptability

- accept changes without complaint;
- perform more than one assignment as required;
- recognize that changeovers, breakdowns and emergencies that demand doing different tasks are an integral part of the job;
- adjust their personal style according to the demands of the situation and the individual involved;
- handle several projects or tasks simultaneously; and
- transfer newly acquired knowledge and skills to new situations.

Business and Finance Cluster

By the end of Grade 12, students will have learned how to apply the academic, technical and employability skills needed for success in the Business and Finance Cluster in higher education and the workplace, and to manage their personal lives.

Program Goals

As a result of education in Grades K-12, students will:

- embrace work and career as part of their future;
- acquire employability skills, including academic and technical skills;
- demonstrate positive attitudes toward work, including acceptance of the necessity of making a living and an appreciation of the social value and dignity of work;
- demonstrate attitudes and habits, including pride in good workmanship, dependability and regular attendance, that are valued in the workplace;
- explore a range of careers and acquire specific knowledge or experience in the Business and Finance Cluster;
- explore career and postsecondary educational opportunities through performance-based learning experiences;
- manage data and utilize problem-solving and analytic skills to make reasoned decisions about employment, societal, political and economic issues; and
- expect multiple career changes over their lifetime.

Technical and Employability Content Standards

Technical Content Standard	Students will demonstrate technical knowledge and skills, including analyzing, administering, researching, communicating, producing and managing in Business and Finance.
Employability Content Standard	Students will demonstrate appropriate employability traits and skills, including, team work, customer service, responsibility, adaptability and persistence.

Technical Content Standard:

Students will demonstrate technical knowledge and skills, including analyzing, administering, researching, communicating, producing and managing in Business and Finance.

Grades 9-12 PERFORMANCE STANDARDS

Educational experiences will assure that students:	Educational experiences will assure that students:	Educational experiences will assure that students:
Information Technology	Computer Knowledge	Computer Knowledge
 understand products and services; understand and describe terminology; understand the financial dynamics of a business and how it functions, how the parts fit together, how it operates in the marketplace, how it competes, its key leverage points, and how actions and decisions translate to the bottom line; understand how the economy affects business risk and returns; understand economic trends and business cycles in the USA during the 20th century; and understand the development of business regulation. 	 use basic computer for data communications, such as using the Internet and electronic mail, teleconferencing and faxing; use computer to format labels, manuals, charts and graphs, and do mail merges and database management; use computer for basic bookkeeping functions; understand and use DOS, LAN, programming, hardware, and networking; and establish and maintain document and information storage, backup and retrieval system. 	 operate a personal computer; have keyboarding skills; use word processing software; use spreadsheet software such as desktop publishing or graphics composition programs (proficient with numbers, symbols, keypad; possess accuracy, rhythm, speed); use database software; and use CD-ROM's.

Employability Content Standard:

Students will demonstrate appropriate employability traits and skills, including team work, customer service, responsibility, adaptability and persistence.

Grades 9-12 PERFORMANCE STANDARDS Educational experiences will assure Educational experiences will assure Educational experiences will assure that students: that students: that students: **Teamwork Personal Attributes Customer Service Skills** create, build and manage take the initiative as the situation adopt a customer service relationships across lines of demands: orientation; authority to accomplish business assume responsibility for their gather information from various results via a collaborative style; own decisions and actions: sources to identify prospective work effectively in a team customers and markets; demonstrate a positive selfcontext: concept, including responsibility, maintain accurate and complete follow verbal and written self-reliance, motivation, information about customers; instructions: persistence, intellectual curiosity, communicate with customers in a integrity and dependability; work effectively under stress; professional manner; persist until the job is done; document and process customer provide support to others (e.g., staff, peers, management, work without close supervision; information and orders: customers; and accept personal responsibility for offer options to problems and foster creativity and innovation. production and quality: negotiate solutions: keep personal conflicts from show customers how to impeding job performance; implement solutions and training; seek new challenges; monitor implementation plan and take action whenever necessary; apply ethical principles to behavior: identify new customer needs; respond constructively to inform customers when needs constructive criticism; and cannot be met: and maintain a professional image. analyze customer feedback to improve the internal customer support process.

Grades 9 - 12 PERFORMANCE STANDARDS continued

Educational experiences will assure that students:

Adaptability

- accept changes without complaint;
- perform more than one assignment as required;
- recognize that changeovers, breakdowns and emergencies that demand doing different tasks are an integral part of the job;
- adjust their personal style according to the demands of the situation and the individual involved;
- handle several projects or tasks simultaneously; and
- transfer newly acquired knowledge and skills to new situations.

Construction Technologies and Design Cluster

By the end of Grade 12, students will have learned how to apply the academic, technical and employability skills needed for success in the Construction Technologies and Design Cluster in higher education and the workplace, and to manage their personal lives.

Program Goals

As a result of education in Grades K-12, students will:

- embrace work and career as part of their future;
- acquire employability skills, including academic and technical skills;

demonstrate positive attitudes toward work, including acceptance of the necessity of making a living and an appreciation of the social value and dignity of work;

- demonstrate attitudes and habits, including pride in good workmanship, dependability and regular attendance, that are valued in the workplace;
- explore a range of careers and acquire specific knowledge or experience in the Construction Technologies and Design Cluster;
- explore career and postsecondary educational opportunities through performance-based learning experiences;
- manage data and utilize problem-solving and analytic skills to make reasoned decisions about employment, societal, political and economic issues; and
- expect multiple career changes over their lifetime.

Technical and Employability Content Standards

Technical Content Standard	Students will demonstrate technical knowledge and skills, including planning, designing, organizing, coordinating, constructing and maintaining in Construction Technologies and Design.
Employability Content Standard	Students will demonstrate appropriate employability traits and skills, including, team work, customer service, responsibility, adaptability and persistence.

Technical Content Standard:

Students will demonstrate technical knowledge and skills, including planning, designing, organizing, coordinating, constructing and maintaining in Construction Technologies and Design.

Grades 9-12 PERFORMANCE STANDARDS Educational experiences will assure Educational experiences will assure Educational experiences will assure that students: that students: that students: **Diagnostics Data Interpretations Computer Knowledge** interpret values from test use basic hand tools; use spreadsheet software; equipment; use word processing software; test equipment; interpret measuring instruments; troubleshoot and repair enter simple data, including interpret blueprint specifications; personal information and equipment and/or recommend alphanumeric variable data, improvements; interpret and follow directions; following menu-driven apply physics principles use statistical techniques instructions on the screen and/or associated with mechanics, including mean, median and clearly defined user pneumatics, hydraulics, standard deviation; documentation: electronics and electricity to job; estimate materials and volume: apply computer concepts to job identify resources to complete a interpret results from quantitative tasks; job task; operate a personal computer use programmable controllers. interpret two-dimensional (PC): build processes and prototypes to drawings; use CAD/CAM; internal product design, determine quality level to decide engineering instructions and use CD-ROM: whether or not to continue customer specs; use database software; and process: maintain inventory levels, use specialized software. apply health and safety, quality, availability and flow; environmental, and fire apply principles of electricity. prevention compliance issues to plumbing, compressed air job tasks; and systems, HVAC systems and apply OSHA safety hazardous carpentry to job tasks; and material regulations to job tasks. demonstrate mechanical aptitude. apply legal requirements and government regulations to job tasks (codes, specifications, etc.); set quality criteria and test the outcome against the criteria.

Grades 9 - 12 PERF	ORMANCE	STANDARDS	continued
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Educational experiences will assure that students:

Educational experiences will assure that students:

Communications

- write various reports;
- prepare service bills; and
- establish and maintain customer dialogue both internally and externally.

Concepts

- have basic knowledge of general management principles;
- have basic knowledge of project management;
- have basic knowledge of cost analysis; and
- have basic knowledge of contracts, bids and proposals.

Employability Content Standard:

Students will demonstrate appropriate employability traits and skills, including team work, customer service, responsibility, adaptability and persistence.

Grades 9-12 PERFORMANCE STANDARDS Educational experiences will assure Educational experiences will assure Educational experiences will assure that students: that students: that students: **Attitude Personal Attributes Teamwork** accept personal responsibility for take the initiative as the situation work effectively in a team production and quality; demands: context; keep personal conflicts from assume responsibility for their follow verbal and written impeding job performance; own decisions and actions: instructions: seek new challenges; maintain high standards of take the initiative as the situation personal behavior; demands: apply ethical principles to behavior; demonstrate a positive selfprovide support to others concept, responsibility, self-(e.g., staff, peers, management, respond constructively to reliance, motivation, persistence constructive criticism; customers); and and intellectual curiosity; foster creativity and innovation. demonstrate appropriate codes of follow verbal and written conduct, values, honesty, instructions; integrity, dependability, flexibility and pride; and persist until the job is done; maintain a professional image. work without close supervision; work effectively under stress.

Grades 9 - 12 PERFORMANCE STANDARDS continued

Educational experiences will assure that students:

Educational experiences will assure that students:

Customer Service Skills

• adopt a customer service orientation;

- gather information from various sources to identify prospective customers and markets;
- communicate with customers in a professional manner;
- maintain accurate and complete information about customers;
- document and process customer information and orders;
- interpret customer information to identify needs;
- offer options to problems and negotiate solutions;
- show customers how to implement solutions and/or training;
- monitor an implementation plan and take action whenever necessary;
- identify new customer needs;
- inform customers when needs cannot be met, and
- make alternate recommendations.

Adaptability

- analyze customer feedback to improve the internal customer support process;
- accept changes without complaint;
- perform more than one assignment as required;
- recognize that changeovers, breakdowns and emergencies that demand doing different tasks are an integral part of the job;
- adjust their personal styles according to the demands of the situation and the individual involved:and
- handle several projects or tasks simultaneously; and transfer newly acquired knowledge and skills to new situations.

Environmental, Natural Resources and Agriculture Cluster

By the end of Grade 12, students will have learned how to apply the academic, technical and employability skills needed for success in the Environmental, Natural Resources and Agriculture Cluster in higher education and the workplace, and to manage their personal lives.

Program Goals

As a result of education in Grades K-12, students will:

- embrace work and career as part of their future;
- acquire employability skills, including academic and technical skills;
- demonstrate positive attitudes toward work, including acceptance of the necessity of making a living and an appreciation of the social value and dignity of work;
- demonstrate attitudes and habits, including pride in good workmanship, dependability and regular attendance, that are valued in the workplace;
- explore a range of careers and acquire specific knowledge or experience in the Environmental, Natural Resources and Agriculture Cluster;
- explore career and postsecondary educational opportunities through performance-based learning experiences;
- manage data and utilize problem-solving and analytic skills to make reasoned decisions about employment, societal, political and economic issues; and
- expect multiple career changes over their lifetime.

Technical and Employability Content Standards

Technical Content Standard	Students will demonstrate technical knowledge and skills, including collecting, analyzing, classifying, comparing, treating and regulating in Environmental, Natural Resources and Agriculture.
Employability Content Standard	Students will demonstrate appropriate employability traits and skills, including, team work, customer service, responsibility, adaptability and persistence.

Technical Content Standard:

Students will demonstrate technical knowledge and skills; including collecting, analyzing, classifying, comparing, treating and regulating in Environmental, Natural Resources and Agriculture.

Grades 9-12 PERFORMANCE STANDARDS		
Educational experiences will assure that students:	Educational experiences will assure that students:	Educational experiences will assure that students:
Biological Sciences	Physical Sciences	Related Knowledge
 use basic biology concepts; and use basic zoology concepts. 	 apply non-stoichiometric realworld reaction concepts; apply concepts of safe handling of chemicals and fire hazards; apply basic fluid flow concepts, mass flow and contaminant flow; apply temperature, pressure and volume relation concepts; use basic physical chemistry measurement instruments; operate, calibrate and maintain basic chemical and physical measurement instruments; apply techniques elementary chemical sampling and testing; demonstrate basic wetlands classification knowledge; understand basic physics concepts; understand basic concepts of chemical reactions and effects; understand basic chemical properties and use concepts; use basic ecology principles; understand basic hydrogeology concepts; use basic concepts of cycles; use basic concepts of contours and gradients; and use basic knowledge of animal care requirements, including animal facilities, disease and prevention. 	 use basic toxicology concepts; use basic ecology principles; apply basic scientific method; know how machines are built and how they work; know residuals, contaminants and by-products from processes; know principles of measuring instruments; know basic production processes; understand basic chemical sampling and testing principles; know basic environmental regulatory concepts; know basic electricity concepts; know basic chemistry concepts; and know basic gas and liquid flow control concepts.

Grades 9 - 12 PERFORMANCE STANDARDS continued		
Educational experiences will assure that students:	Educational experiences will assure that students:	Educational experiences will assure that students:
Computer Knowledge and Skills	Speaking, Listening and Processing	Logic, Problem-Solving and Analytical
 use keyboard, disks, printers and modem; input, retrieve, store and manipulate information; use word processing programs; use database programs; use spreadsheet programs; use drawing and drafting programs; use computer tools to locate information; use basic computer tool operations; and interface measuring instrument with the computer. 	 phrase technical concepts clearly; use correct professional terminology; repeat information accurately; wait and think before answering; remember by listening and watching; analyze what's being said for accurate content; use critical thinking and questioning to assess content; evaluate the stated basis for decisions; formulate a stated basis for decisions; follow verbal Instructions; follow task sequences; obtain accurate answers; and validate information before passing it along. 	 use sequential logic, make simple flow diagrams; make organized subsets and tabulate information; interpret trends; apply cause-and-effect principles; apply correlation equations and principles; apply deductive and inductive reasoning to situations; make working diagrams of physical situations; conceptualize physical and chemical problems on paper; organize problems for diagnosis; apply background and academic knowledge to a problem; and detect faulty data.

Employability Content Standard:

Students will demonstrate appropriate employability traits and skills, including team work, customer service, responsibility, adaptability and persistence.

Grades 9-12 PERFORMANCE STANDARDS		
Educational experiences will assure that students:	Educational experiences will assure that students:	Educational experiences will assure that students:
Teamwork	Personal Attributes	Attitude
 work effectively in a team context; work effectively under stress; provide support to others (e.g., staff, peers, management, customers); and foster creativity and innovation. 	 take the initiative as the situation demands; assume responsibility for own decisions and actions; maintain high standards of personal behavior; demonstrate a positive self-concept, pride, responsibility, self-reliance, motivation, persistence and intellectual curiosity; follow verbal and written instructions; persist until the job is done; work without close supervision; and work effectively under stress. 	 accept personal responsibility for production and quality; keep personal conflicts from impeding job performance; seek new challenges; apply ethical principles to behavior; respond constructively to constructive criticism; project and maintain a professional image; and demonstrate appropriate codes of conduct, values, honesty, integrity, dependability, flexibility and pride.

- 12 PERFORMANCE STANDARDS continued		
Educational experiences will assure that students:	Educational experiences will assure that students:	
Adaptability	Customer Service Skills	
 accept changes without complaint; perform more than one assignment as required; recognize that changeovers, breakdowns and emergencies that demand doing different tasks are an integral part of the job; adjust personal style according to the demands of the situation and the individual involved; handle several projects or tasks simultaneously; and transfer newly-acquired knowledge and skills to new situations. 	 adopt a customer service orientation; document and process customer information and orders; interpret customer information to identify needs; offer options to problems and negotiate solutions; show customers how to implement solutions and training; monitor the implementation plan and take action whenever necessary; identify customer needs; inform customers when needs cannot be met; make alternate recommendations; demonstrate good salesmanship; and analyze customer feedback to improve the internal customer support process. 	

Grades 9

Government, Education and Human Services Cluster

By the end of Grade 12, students will have learned how to apply the academic, technical and employability skills needed for success in the Government, Education and Human Services Cluster in higher education and the workplace, and to manage their personal lives.

Program Goals

As a result of education in Grades K-12, students will:

- embrace work and career as part of their future;
- acquire employability skills, including academic and technical skills;
- demonstrate positive attitudes toward work, including acceptance of the necessity of making a living and an appreciation of the social value and dignity of work;
- demonstrate attitudes and habits, including pride in good workmanship, dependability and regular attendance, that are valued in the workplace;
- explore a range of careers and acquire specific knowledge or experience in the Government, Education and Human Services Cluster;
- explore career and postsecondary educational opportunities through performance-based learning experiences;
- manage data and utilize problem-solving and analytic skills to make reasoned decisions about employment, societal, political and economic issues; and
- expect multiple career changes over their lifetime.

Technical and Employability Content Standards

Technical Content Standard	Students will demonstrate technical knowledge and skills, including counseling, mediating, managing, regulating, intervening and educating in Government, Education and Human Services.
Employability Content Standard	Students will demonstrate appropriate employability traits and skills, including, team work, customer service, responsibility, adaptability and persistence.

Technical Content Standard:

Students will demonstrate technical knowledge and skills, including counseling, mediating, managing, regulating, intervening and educating in Government, Education and Human Services.

Grades 9-12 PERFORMANCE STANDARDS			
Educational experiences will assure that students:	Educational experiences will assure that students:	Educational experiences will assure that students:	
Speaking and Listening Skills	Scientific Knowledge and Skills	Problem-Solving and Analytical Skills	
 give and follow oral instructions; communicate ideas clearly and concisely in individual and group situations; interview and elicit pertinent information; conduct and participate in meetings; use professional terminology correctly; phrase concepts correctly; recruit and utilize volunteers; and phrase legal concepts clearly. 	 have general knowledge of psychology and physiology; have knowledge of physiological and perceptual disorders such as learning disabilities and perceptual handicaps; have knowledge of problems of adolescents and influences of the environment; have knowledge of psychosis, personality disorder, psychopathology and violence; have knowledge of the processes of normal human behavior, such as motivation, emotion and neurosis; have knowledge of group therapy techniques such as client client-centered behavior modification techniques; 	 analyze and interpret laws and regulations; gather and analyze data; use resources efficiently; have strong organizational skills; conduct studies; and develop effective solutions to various problems. 	

Educational experiences will assure that students: Computer Skills use word processing programs; use database programs; understand and use basic computer tool operations; have knowledge of the functioning and use of information systems and technology; have knowledge of data processing and data communications equipment; use the keyboard, disks, printers and related equipment; have basic knowledge of computer systems, software, tape record layout, file organization, maintenance and other related factors; have basic knowledge of the concepts of the network and microcomputer operating system; have knowledge of the	that students: Occupation- Specific Knowledge and Skills • have knowledge of services provided by various agencies and providers; • have knowledge of community resources and services; • have knowledge of relevant state and federal laws; • have knowledge of basic office
 use word processing programs; use database programs; understand and use basic computer tool operations; have knowledge of the functioning and use of information systems and technology; have knowledge of data processing and data communications equipment; use the keyboard, disks, printers and related equipment; have basic knowledge of computer systems, software, tape record layout, file organization, maintenance and other related factors; have basic knowledge of the concepts of the network and microcomputer operating system; 	 Knowledge and Skills have knowledge of services provided by various agencies and providers; have knowledge of community resources and services; have knowledge of relevant state and federal laws; have knowledge of basic office
 use database programs; understand and use basic computer tool operations; have knowledge of the functioning and use of information systems and technology; have knowledge of data processing and data communications equipment; use the keyboard, disks, printers and related equipment; have basic knowledge of computer systems, software, tape record layout, file organization, maintenance and other related factors; have knowledge of principles and practices of family therapy; apply general scientific knowledge in a variety of circumstances (e.g., environment); have knowledge of science and scientific terminology; and have knowledge of the circumstances (e.g., environment); have knowledge of principles and practices of family therapy; apply general scientific knowledge in a variety of circumstances (e.g., environment); have knowledge of principles and practices of family therapy; apply general scientific knowledge in a variety of circumstances (e.g., environment); have knowledge of principles and practices of family therapy; apply general scientific knowledge in a variety of circumstances (e.g., environment); have knowledge of principles and practices of family therapy; apply general scientific knowledge of circumstances (e.g., environment); have knowledge of toxic and flammable substances. 	 provided by various agencies and providers; have knowledge of community resources and services; have knowledge of relevant state and federal laws; have knowledge of basic office
functioning and use of information systems and technology; • have knowledge of data processing and data communication equipment; • have knowledge of state and national communication and information systems; and • use software packages appropriate to the job.	 methods and procedures; have knowledge of basic office equipment; logically analyze problem situations and develop workable solutions; assess client behavior in terms of desired objectives and in relation to others; mediate problems; assess individual behavior and observe changes in clients; gather information and prepare reports; interpret statutes, laws and regulations; comprehend trends in public policy; develop solutions and strategies to implement public policy goals; have the ability to maintain a complex set of records; have the basic knowledge of public relations skills; analyze and troubleshoot simple operational and data communications problems; interpret flow charts; analyze and evaluate data; develop solutions and strategies to address public safety concerns;

Grades 9 - 12 PERFORMANCE STANDARDS continued

Educational experiences will assure that students:

Occupation- Specific Knowledge and Skills

(Continued)

- interpret statutes, regulations, case law, legal documents and other written materials;
- work with diverse groups and exhibit cultural sensitivity;
- have knowledge of early childhood education;
- have knowledge of policies, procedures and philosophies of the appropriate institution;
- have knowledge of disciplinary techniques and guidelines for their use;
- recognize nonverbal communication such as body language;
- have expertise in legal research techniques;
- have basic knowledge of legislative and administrative government processes;
- have knowledge of law enforcement practices and routines;
- have knowledge of relevant agency policies; and
- learn state and municipal laws, regulations and procedures.

Employability Content Standard:

Students will demonstrate appropriate employability traits and skills, including team work, customer service, responsibility, adaptability and persistence.

Grades 9-12 PERFORMANCE STANDARDS Educational experiences will assure Educational experiences will assure Educational experiences will assure that students: that students: that students: **Teamwork Personal Attributes Customer Service Skills** work effectively in a team take the initiative as the situation adopt a customer service demands: orientation; context: follow verbal and written take responsibility for their own gather information from various decisions and actions: sources to identify prospective instructions: customers and markets; take initiative as the situation maintain high standards of personal behavior; communicate with customers in a demands: professional manner; provide support to others demonstrate a positive selfconcept, responsibility, selfmaintain accurate and complete (e.g., staff, peers, management, reliance, motivation, persistence customers); and information about customers: and intellectual curiosity; foster creativity and innovation. document and process customer follow verbal and written information and orders: instructions; interpret customer information to persist until the job is done; identify needs; work without close supervision; offer options to problems and negotiate solutions; work effectively under stress; accept personal responsibility for show customers how to implement solutions and training; production and quality; monitor an implementation plan keep personal conflicts from and take action whenever impeding job performance; necessary; seek new challenges; identify new customer needs; apply ethical principles to inform customers when needs behavior: cannot be met: respond constructively to make alternate recommendations; constructive criticism; and maintain a professional image; analyze customer feedback to improve the internal customer demonstrate appropriate codes of support process. conduct, values, honesty,

integrity, dependability, flexibility

and pride.

Grades 9 - 12 PERFORMANCE STANDARDS continued

Educational experiences will assure that students:

Adaptability

- accept changes without complaint;
- perform more than one assignment as required;
- recognize that changeovers, breakdowns and emergencies that demand doing different tasks are an integral part of the job;
- adjust personal style according to the demands of the situation and individual involved;
- handle several projects or tasks simultaneously; and
- transfer newly acquired knowledge and skills to new situations.

Health and Biosciences Cluster

By the end of Grade 12, students will have learned how to apply the academic, technical and employability skills needed for success in the Health and Biosciences Cluster in higher education and the workplace, and to manage their personal lives.

Program Goals

As a result of education in Grades K-12, students will:

- embrace work and career as part of their future;
- acquire employability skills, including academic and technical skills;
- demonstrate positive attitudes toward work, including acceptance of the necessity of making a living and an appreciation of the social value and dignity of work;
- demonstrate attitudes and habits, including pride in good workmanship, dependability and regular attendance, that are valued in the workplace;
- explore a range of careers and acquire specific knowledge or experience in the Health and Biosciences Cluster;
- explore career and postsecondary educational opportunities through performance-based learning experiences;
- manage data and utilize problem-solving and analytic skills to make reasoned decisions about employment, societal, political and economic issues; and
- expect multiple career changes over their lifetime.

Technical and Employability Content Standards

Technical Content Standard	Students will demonstrate technical knowledge and skills; including examining, treating, prescribing, administering, monitoring, researching and analyzing in Health and Biosciences.
Employability Content Standard	Students will demonstrate appropriate employability traits and skills, including, team work, customer service, responsibility, adaptability and persistence.

Technical Content Standard:

Students will demonstrate technical knowledge and skills, including examining, treating, prescribing, administering, monitoring, researching and analyzing in Health and Biosciences.

Grades 9-12 PERFORMANCE STANDARDS Educational experiences will assure Educational experiences will assure Educational experiences will assure that students: that students: that students: **Investigation Skills Physical and Biological** Speaking, Listening and **Processing Skills Sciences** apply temperature, pressure and phrase technical concepts clearly; use comparisons, contrasts, volume relations concepts; sequences; formulate questions to get apply principles of safe handling use sampling and testing clarification; principles; of hazardous materials; repeat information accurately; distinguish relevant from use basic measurement use appropriate medical and irrelevant information; instruments: technical terminology correctly; assess the reliability of sources apply basic animal science follow verbal instructions; used; knowledge; remember by listening and apply basic human anatomy make critical judgments; and watching; knowledge; apply basic scientific method. think about what is not said; apply basic biochemistry assess a speaker's understanding knowledge; of the situation: apply basic biology knowledge; wait and think before speaking apply basic chemistry knowledge; and answering; apply basic immunobiology use critical thinking and knowledge; questioning to assess content; apply basic microbiology analyze what is being said for knowledge; accurate content: apply basic molecular biology obtain accurate answers: knowledge: transcribe information with apply basic organic chemistry accuracy and precision; and knowledge; validate information before apply basic physiology passing it along. knowledge; apply basic virology knowledge; apply basic zoology knowledge; and

apply basic toxicology knowledge.

Grades 9 - 12 PERFORMANCE STANDARDS continued				
Educational experiences will assure that students:	Educational experiences will assure that students:	Educational experiences will assure that students:		
Logic	Problem-Solving and Analytical Skills	Related Technical Knowledge		
 apply cause-and-effect principles; apply correlation equations and principles; apply deductive and inductive reasoning to situations; organize information for diagnosis; and interpret basic information. 	 apply background and academic knowledge to a problem; test the premise; detect faulty data; understand troubleshooting vs; long-term problem solving; make organized subsets and tabulate information; provide examples for comparison; and interpret trends. 	 use principle instruments, such as microscopes, autoclaves, analyzers, centrifuges, shields and safety hoods; know basic laboratory procedures such as pipetting, sterile technique, knowledge of factors such as pressure and air sensitivity; perform inventory and supply maintenance; know phlebotomy; use aseptic techniques; understand basic human growth and development; know general preventive health practices, such as nutrition and stress management; have an understanding of illness prevention; know routine maintenance and calibration of equipment; monitor quality of sample or specimen; and know lifting techniques. 		
Computer Skills				
 use keyboard, disks, printers and peripheral devices; input, retrieve, store and manipulate data; use word processing programs; use database programs; use searching techniques; use spreadsheet programs; use drawing and graphics programs; and use statistical programs. 				

Employability Content Standard:

Students will demonstrate appropriate employability traits and skills, including team work, customer service, responsibility, adaptability and persistence.

Grades 9-12 PERFORMANCE STANDARDS Educational experiences will assure Educational experiences will assure Educational experiences will assure that students: that students: that students: **Attitude Personal Attributes Teamwork** accept personal responsibility for take the initiative as the situation work effectively in a team production and quality; demands: context; keep personal conflicts from assume responsibility for their follow verbal and written impeding job performance; own decisions and actions; instructions: seek new challenges; maintain high standards of provide support to others (e.g., personal behavior; staff, peers, management, apply ethical principles to customers); and behavior; demonstrate a positive selfconcept, responsibility, selffoster creativity and innovation. respond constructively to reliance, motivation, persistence constructive criticism; and intellectual curiosity; maintain a professional image; follow verbal and written and instructions; demonstrate appropriate codes of persist until the job is done; conduct, values, honesty, integrity, dependability, flexibility work without close supervision; and pride. work effectively under stress.

Gia	Educational experiences will assure that students:	Educational experiences will assure that students:
	Adaptability	Customer Service Skills
	 accept changes without complaint; perform more than one assignment as required; recognize that changeovers, breakdowns and emergencies that demand doing different tasks are an integral part of the job; adjust their personal style according to the demands of the situation and individual involved; handle several projects or tasks simultaneously; and transfer newly acquired knowledge and skills to new situations. 	 adopt a customer service orientation; gather information from various sources to identify prospective customers and markets; communicate with customers in a professional manner; maintain accurate and complete information about customers; document and process customer information and orders; interpret customer information to identify needs; offer options to problems and negotiate solutions; show customers how to implement solutions and training; monitor an implementation plan and take action whenever necessary; identify new customer needs; inform customers when needs cannot be met; make alternate recommendations;

analyze customer feedback to improve internal customer

support process.

Retail, Tourism, Recreation and Entrepreneurship Cluster

By the end of Grade 12, students will have learned how to apply the academic, technical and employability skills needed for success in the Retail, Tourism, Recreation and Entrepreneurship Cluster in higher education and the workplace, and to manage their personal lives.

Program Goals

As a result of education in Grades K-12, students will:

- embrace work and career as part of their future;
- acquire employability skills, including academic and technical skills;
- demonstrate positive attitudes toward work, including acceptance of the necessity of making a living and an appreciation of the social value and dignity of work;
- demonstrate attitudes and habits, including pride in good workmanship, dependability and regular attendance, that are valued in the workplace;
- explore a range of careers and acquire specific knowledge or experience in the Retail, Tourism, Recreation and Entrepreneurship Cluster;
- explore career and postsecondary educational opportunities through performance-based learning experiences;
- manage data and utilize problem-solving and analytic skills to make reasoned decisions about employment, societal, political and economic issues; and
- expect multiple career changes over their lifetime.

Technical and Employability Content Standards

Technical Content Standard	Students will demonstrate technical knowledge and skills; including selecting, purchasing, catering, advising, coordinating and preparing in Retail, Tourism, Recreation and Entrepreneurship.
Employability Content Standard	Students will demonstrate appropriate employability traits and skills, including, team work, customer service, responsibility, adaptability and persistence.

Technical Content Standard:

Students will demonstrate technical knowledge and skills; including selecting, purchasing, catering, advising, coordinating and preparing in Retail, Tourism, Recreation and Entrepreneurship.

Grades 9-12 PERFORMANCE STANDARDS					
Educational experiences will assure that students:	Educational experiences will assure that students:	Educational experiences will assure that students:			
Safety Skills	Computer and Office Equipment	Industry Knowledge			
 show initiative on the job; are able to locate and operate emergency exits and fire extinguishers; demonstrate proper use of ergonomics; demonstrate knowledge of basic first aid procedures; demonstrate knowledge of emergency situation procedures (personal threats, loss of power, injury or other situations); and demonstrate knowledge of accident prevention and reporting procedures. 	 know basic telephone operation and etiquette; have basic knowledge of computer hardware and software; use technology to solve problems and improve productivity; use a photocopier to make quality copies; operate fax machine to send a document; demonstrate basic keyboard (register/ terminal) skills; are proficient with point-of-sale registers and calculators; and enter and receive data through a terminal or personal computer. 	 demonstrate an understanding of the employer's business (products and services provided and customers served); demonstrate the ability to distinguish between good and bad service; and demonstrate appropriate product knowledge. 			

Employability Content Standard:

Students will demonstrate appropriate employability traits and skills, including team work, customer service, responsibility, adaptability and persistence.

Grades 9-12 PERFORMANCE STANDARDS Educational experiences in **Grade** Educational experiences in **Grade** Educational experiences in **Grade 9-12** will assure that students: **9-12** will assure that students: **9-12** will assure that students: **Attitude Personal Attributes Teamwork** are able to market themselves: work effectively under stress; show respect for co-workers and associates; accept personal responsibility for know the parameters of the job; production and quality; work effectively in a team demonstrate appropriate personal keep personal conflicts from hygiene, grooming and dress context; impeding job performance; standards: follow verbal and written instructions: seek new challenges; demonstrate good manners and common courtesy; take initiative as the situation apply ethical principles to demands: behavior; exhibit punctuality and commitment to the job; provide support to others respond constructively to (e.g. staff, peers, management, constructive criticism; take the initiative as the situation customers): demands: maintain a professional image; demonstrate problem-solving take responsibility for their own demonstrate an understanding ability; and decisions and actions; and tolerance of a wide variety of foster creativity and innovation. types of people; and maintain high standards of personal behavior; demonstrate appropriate codes of conduct, values, honesty, demonstrate a positive selfintegrity, dependability, flexibility concept, responsibility, self and pride. reliance, motivation, persistence and intellectual curiosity; follow verbal and written instructions: persist until the job is done; comply with policies and practices of their employers; and

work without close supervision.

Grades 9 - 12 PERFORMANCE STAND	
Educational experiences will assure that students:	Educational experiences will assure that students:
Internal and External Customer Service Skills	Adaptability
 adopt a customer service orientation; gather information from various sources to identify prospective customers and markets; communicate with customers in a professional manner; maintain accurate and complete information about customers; document and process customer information and orders; interpret customer information to identify needs; offer options to problems and negotiate solutions; show customers how to implement solutions and training; monitor an implementation plan and take action whenever necessary; identify new customer needs; inform customers when needs cannot be met; make alternate recommendations; and analyze customer feedback to improve the internal customer support process. 	 accept changes without complaint; perform more than one assignment as required; recognize that changeovers, breakdowns and emergencies that demand doing different tasks are an integral part of the job; adjust their personal style according to the demands of the situation and individual involved; handle several projects or tasks simultaneously; and transfer newly acquired knowledge and skills to new situations.

Technologies: Manufacturing, Communications and Repair Cluster

By the end of Grade 12, students will have learned how to apply the academic, technical and employability skills needed for success in the Technologies: Manufacturing, Communications and Repair Cluster in higher education and the workplace, and to manage their personal lives.

Program Goals

As a result of education in Grades K-12, students will:

- embrace work and career as part of their future;
- acquire employability skills, including academic and technical skills;
- demonstrate positive attitudes toward work, including acceptance of the necessity of making a living and an appreciation of the social value and dignity of work;
- demonstrate attitudes and habits, including pride in good workmanship, dependability and regular attendance, that are valued in the workplace;
- explore a range of careers and acquire specific knowledge or experience in the Technologies: Manufacturing, Communications and Repair Cluster;
- explore career and postsecondary educational opportunities through performance-based learning experiences;
- manage data and utilize problem-solving and analytic skills to make reasoned decisions about employment, societal, political and economic issues; and
- expect multiple career changes over their lifetime.

Technical and Employability Content Standards

Technical Content Standard	Students will demonstrate technical knowledge and skills; including designing, fabricating, manufacturing, assembling, troubleshooting, operating, installing and maintaining in Technologies: Manufacturing, Communications and Repair.
Employability Content Standard	Students will demonstrate appropriate employability traits and skills, including, team work, customer service, responsibility, adaptability and persistence.

Technical Content Standard:

Students will demonstrate technical knowledge and skills, including designing, fabricating, manufacturing, assembling, troubleshooting, operating, installing and maintaining in Technologies: Manufacturing, Communications and Repair.

Grades 9-12 PERFORMANCE STANDARDS Educational experiences will assure Educational experiences will assure Educational experiences will assure that students: that students: that students: **Diagnostics Data Interpretations Tools and Equipment** interpret values from test demonstrate mechanical aptitude; use basic hand tools; equipment; perform electrical soldering; test equipment; interpret measuring instruments; troubleshoot and repair set up and operate simple machine tools such as a lathe, equipment and/or give interpret setup charts; recommendations for repair; vertical mill, drill press, saw, interpret data-gathering charts, Bridgeport and surface grinder; apply physics principles scatter diagrams, pareto diagrams, associated with mechanics, histograms and statistical charts; select tool types based on pneumatics, hydraulics, materials and features to be estimate materials and volume; electronics and electricity to job machined; and interpret results from quantitative tasks: use offsets to finish setup and apply electrical and mechanical begin operation. interpret two-dimensional variables and measurement drawings; principles, including the concepts determine quality level to decide of accuracy, repeatability and whether or not to continue process tolerance to job tasks; process: and use programmable controllers; apply OSHA safety and use mechanical measuring hazardous material regulations to equipment, including scales, job tasks. calipers, venires and dial indicators to measure both linear and circular dimensions: and use electrical measuring equipment and devices, including vole, ampere, ohm meters, frequency counters, and oscilloscopes, to take basic measurements of electrical circuit performance.

Grades 9 - 12 PERFORMANCE STANDARDS

Educational experiences will assure that students:

Educational experiences will assure that students:

Communications

Computer Knowledge and Skills

- maintain reports an data sheets;
- write test reports;
- prepare service bills;
- maintain a disciplined laboratory notebook that thoroughly and accurately describes experimental concepts, setup, procedures and results obtained;
- write a technical report that summarizes an experiment;
- complete a status report and machine log;
- record data during the fabrication process;
- apply legal requirements and government regulations to job tasks;
- identify and obtain sources of information about customer needs:
- apply data analysis techniques to job tasks;
- monitor quality and improvement processes;
- investigate a product and/or process deviation and the root cause of deviation;
- build processes and prototypes according to internal product design, engineering instructions and customer specification;
- set quality criteria and test outcome against those criteria;
- apply line and work station setup and machine capability to job tasks; and
- maintain inventory levels, quality, availability and flow.

- operate a personal computer;
- use word processing software;
- use spreadsheet software;
- use database software:
- use CAD/CAM systems;
- use CD-ROM's;
- operate a basic operating system, including file and directory maintenance, and backup;
- enter simple data, including personal information and alphanumeric variable data, following menu-driven instructions on the screen and/or clearly defined user documentation;
- apply computer concepts to job tasks such as labels, analysis, technical manuals, charts and graphs, sales journal, mail merge, electronic mail, teleconferencing and fax:
- apply CNC machinery control concepts and operation with one or more commonly used controllers and languages to job tasks:
- change machine setup and load a new program into the controller;
- operate CNC machinery with one or more commonly used controllers and languages;
- apply basic computer concepts to job tasks;

(Continued)

Grades 9 - 12 PERFORMANCE STANDARDS

Educational experiences will assure that students:

Computer Knowledge and Skills (Continued)

- concepts include data communications, hardware and software, networking, microcomputer systems, dos, programming, keyboarding, database management, microprocessors and local are a network;
- apply computer concepts to job tasks such as maintaining lists, payroll and sales information, profit/loss statements, accounts payable and receivable, balance sheets, general ledger inventory and taxes; and
- apply computer concepts to job tasks such as graphic design and layout and newsletters.

Employability Content Standard:

Students will demonstrate appropriate employability traits and skills, including team work, customer service, responsibility, adaptability and persistence.

Grades 9-12 PERFORMANCE STANDARDS Educational experiences will assure Educational experiences will assure Educational experiences will assure that students: that students: that students: Attitude **Personal Attributes Teamwork** accept personal responsibility for take the initiative as the situation work effectively in a team production and quality; demands: context; keep personal conflicts from assume responsibility for their follow verbal and written impeding job performance; own decisions and actions: instructions: seek new challenges; maintain high standards of take the initiative as the situation personal behavior; demands: apply ethical principles to behavior; demonstrate a positive selfprovide support to others (e.g., concept, responsibility, selfstaff, peers, management, respond constructively to reliance, motivation, persistence constructive criticism; customers); and and intellectual curiosity; foster creativity and innovation. demonstrate appropriate codes of follow verbal and written conduct, values, honesty, instructions; integrity, dependability, flexibility and pride; and maintain a persist until the job is done; professional image. work without close supervision; work effectively under stress.

Grades 9-12 PERFORMANCE STANDARDS

Educational experiences will assure Educational experiences will assure that students: that students: **Customer Service Skills** Adaptability accept changes without adopt a customer service complaint; orientation; perform more than one gather information from various assignment as required; sources to identify prospective customers and markets; recognize that changeovers. breakdowns and emergencies that communicate with customers in a demand doing different tasks are professional manner; an integral part of the job; maintain accurate and complete adjust their personal style information about customers; according to the demands of the document and process customer situation and the individual information and orders: involved: interpret customer information to handle several projects or tasks identify needs; simultaneously; and offer options to problems and transfer newly acquired negotiate solutions; knowledge and skills to new show customers how to situations. implement solutions and training; monitor an implementation plan and take action whenever necessary; identify new customer needs; inform customers when needs cannot be met: make alternate recommendations; analyze customer feedback to

improve the internal customer

support process.

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